



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,426	11/26/2003	Johnny Zhong	15436.135.1	1047

7590 04/07/2005

R. BURNS ISRAELSEN  
WORKMAN NYDEGGER  
1000 Eagle Gate Towe  
60 East South Temple  
Salt Lake City, UT 84111

EXAMINER

KIM, JOANNE H

ART UNIT PAPER NUMBER

2883

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/724,426

Applicant(s)

ZHONG ET AL.

Examiner

Joanne H. Kim

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 25-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "each thin film filter (or thin film three-port device) of the drop portion configured to allow a particular channel to pass through while reflecting other channels" in claims 8 and 18 and "a difference between a wavelength at one end of the bandwidth and a wavelength at another end of the bandwidth being about 12nm" in claims 12 and 22 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification fails to provide proper antecedent basis for: each thin film filter (or thin film three-port device) of the drop portion configured to allow a particular channel to pass through while reflecting other channels in claims 8 and 18.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, 9-11, 13-17, 19-21, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cormack (U.S. Patent Pub. No. 2003/0053747) in view of Wu et al. (U.S. Patent No. 6,512,615, hereinafter "Wu").

Cormack discloses that the conventional optical add/drop module comprises a plurality of thin film filters (thin film three port devices) in a cascade arrangement, wherein each thin film file drops a particular channel from a WDM signal (paragraphs [0003] and [0008]).

Cormack does not disclose an add portion comprising a first stage of interleavers and a final stage including a thin film interleaver having a flat-top frequency response.

Wu discloses an optical add/drop module (i.e., multiplexer/demultiplexer) comprising a plurality of interleavers in a cascade arrangement. The add portion (i.e., multiplexer) of the add/drop module includes a flat-top slicer such as a polarization-based filter and its equivalents in a final state where the channels are most densely packed. The preceding devices in the cascade arrangement can be based on a number of technologies including a fused biconical taper technology or interference filters (column 2, lines 42-46; column 3, lines 1-10; column 4, lines 5-9 and 51-67; and column 6, lines 15-17). The flat-top slicer provides a channel separating function, which has adequate flatness and isolation (column 5, lines 49-52). The flat-top frequency response is essentially constant over a bandwidth about a defined carrier channel wavelength (Fig. 6 and column 5, lines 49-52). The thin film filters of the drop portion is configured to deinterleave a multiplexed signal by allowing a first group of channels to pass through the thin film filter while reflecting a second group of channels, wherein each group of channels comprises alternating channels (column 3, lines 1-10; and column 5, lines 8-18).

Further, the equivalent of the polarization-based filter includes a thin film interleaver such as a multi-cavity Fabry-Perot etalon, which includes a plurality of cavities comprising one or more thin film layer and a spacer and a final cavity comprising a spacer that includes a matching layer designed with an index of refraction intended to match the thin film interleaver to surrounding air or to another device, and it

is well known that an interleaver based on the fused biconical taper technology includes a fused-fiber interleaver.

Accordingly, it would have been obvious to modify the conventional add/drop module to include the flat-top slicer (i.e., a thin film interleaver with a flat-top frequency response) in the final stage of the add portion and the fused-fiber interleaver in the first stage of the add portion such as that taught by Wu.

The motivation would have been to provide a low cost add/drop module with good peak flatness, high isolation and low crosstalk.

5. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cormack in view of Wu, further in view of Lou et al. (U.S. Patent No. 6,256,433, hereinafter "Lou").

The combination of Cormack in view of Wu as discussed in paragraph 4 above discloses the optical add/drop module. Cormack discloses that the conventional optical add/drop module comprises a plurality of thin film filters (thin film three port devices), each of which drops a particular channel from a WDM signal.

The combination of the references does not disclose that the each thin film filter of the drop portion drops a particular channel from a WDM signal by allowing the particular channel to pass through the thin film filter (three-port device) while reflecting other channels.

Lou discloses an optical add/drop filter module comprising thin film filters (three-port devices). Lou discloses a thin film filter (210) dropping a particular channel from a

WDM signal by allowing the particular channel to pass through the thin film filter while reflecting other channels (column 2, lines 6-10).

Accordingly, It would have been obvious to one of ordinary skill in the art to modify the combination of Cormack and Wu to use the thin film filter of Lou in the drop portion since these two are equivalents (i.e., both thin film filters drop a particular channel from a WDM signal).

6. Claims 12 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cormack in view of Wu, further in view of Turpin et al. (U.S. Patent Pub. No. 2003/0128917, hereinafter "Turpin").

The combination of Cormack in view of Wu as discussed in paragraph 4 above discloses the optical add/drop module. Wu discloses that the flat-top slicer provides a channel separating function, which has adequate flatness and isolation. Wu discloses the flat-top slicer providing flatness over a range of 0.3nm (Fig. 6).

The combination of the references does not disclose that a difference between a wavelength at one end of the bandwidth and a wavelength at another end of the bandwidth is about 12nm.

Turpin discloses that a primary goal of WDM system is to maximize the number of multiplexed channels carried by the optical fiber while maintaining the quality of every independent signal within each channel. Turpin discloses that improving the data rate of a device is dependent upon creating a spectral response with a flatter, wider portion throughout the passband (paragraph [0115]).

Accordingly, it would have been obvious to one of ordinary skill in the art to select a difference between a wavelength at one end of the bandwidth and a wavelength at another end of the bandwidth to be about 12nm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 6-24 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joanne H. Kim whose telephone number is (571) 272-2139. The examiner can normally be reached on 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

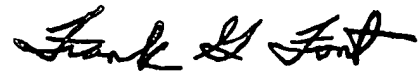


Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joanne H. Kim  
Examiner  
Art Unit 2883

jhk/FGF



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800